Gold Star Awards
and now with Silver Star Candidates

Hardfacts
Special Awards Edition

Recreation Center - Williston

Heritage Center - Bismarck

St. Joseph Hospital - Dickinson

2014 Gold Star Project and Scholarship Awards

Count on Concrete

www.ndconcrete.com
Celebrating Excellence

For more than twenty years, the North Dakota Ready Mix & Concrete Products Association has honored our industry partners who have demonstrated the excellence and overall dedication needed to win our highest project awards each year. This year, we again have identified projects and their promoters and builders who will earn well deserved distinctions in our industry. The people involved in planning and specifying the use of concrete, and ultimately building these projects, will hopefully be recognized and honored, at least at some small scale, with this Hardfacts Special Awards Edition. For it is these people who not only honor themselves with finding effective uses for concrete, but it is their clients, project owners, and the public in general who will benefit from the environmental benefits, the value and the aesthetics that can come from the use of concrete.

Hardfacts applauds all winners, past and present, as they should be proud of their achievements. We hope they continue to provide the highest level of quality and dedication to the concrete industry.

David C. Sethre
Marketing Director

Gold 2014

Sue Stewart President
Art Thompson Vice President
Andy Glass Secretary/Treasurer
Brad Beyer Past-President
Vince Frost Director
John Jund Director
Al Christianson Director
Scott Olin Director
Jeff Stumpf Director

North Dakota Ready Mix & Concrete Products Association
PO Box 1076 • Bismarck, ND 58502 • 701-255-7250

David C. Sethre
Marketing Director
701-371-4497
dsethre@ndconcrete.com

donconcrete.com
This project is a 1.6 million gallon water reservoir containing approximately 500 cubic yards of concrete. Concrete was chosen for the foundations ring walls and floors because of its structural integrity, durability, and ease of construction.

When concrete is utilized for any liquid containing structure, it is important to minimize leakage from cracking due to normal shrinkage. Typically, this is accomplished by incorporating flexible waterstops cast into the concrete at prescribed control joints. It’s common practice to allow a minimum of seven days of cure time for each concrete section to mature and shrink prior to placing an adjacent section that is sharing the waterstop at the construction joint.

The tank floor in this project was originally planned for 14 waterstop construction joints to accommodate the expected shrinkage of a traditional concrete placement. This implies a 13 week placement schedule for the reservoir floor. Through a joint effort and communication between the stakeholders, an ultra low shrink concrete was developed for the project. By incorporating the low shrinkage data into the design calculations for the floor placement, it was possible to reduce the necessary waterstops from fourteen to four. To prepare for an effective installation, lab trials included shrinkage testing, set times, workability curves, temperature gain, and compressive strength. This accelerated the floor placement plan from thirteen weeks to nine days.

This approach was so successful that Engineering America repeated the mix design process on their next reservoir project at Wheelock, ND and will continue to use it on future reservoirs in North Dakota.

The design philosophy for the ultra low shrink concrete was to optimize the paste volume and reduce the amount of mix water by lowering the water to cement (w/c) ratio. To reduce the shrinkage from hydration, a shrinkage reducing admixture (SRA) was incorporated to reduce the internal tension stresses which cause shrinkage. Also, macro fibers were incorporated to help reinforce the resistance to shrinkage. Other placement tools included a high range water reducer (HRWR) and a hydration stabilizer.
**Magic City Campus Courtyard - Minot High School**

**Owner:** Minot Public Schools  
**Concrete Contractor:** Lenco Construction - Minot  
**Concrete Supplier:** Souris Valley Ready Mix – Minot

**DECORATIVE DESIGN CATEGORY**

This project is not necessarily notable for the size of installation, but for the intricate detailing, especially in formwork, required to construct the courtyard and logo. The courtyard was initially constructed with pavers (which had deteriorated badly), but MHS determined that colored concrete would provide the service life preferable for a high focus reconstruction for this location. School officials noted that, “We want it built for the long haul!”

The concrete used was 4000 psi air entrained and was poured 6” thick. The gold MHS letters and border were poured first. The letters were broomed and sealed. Lenco next poured the interior of the letters, then stamped a slate texture and sealed the colored surface. Between the brooming and the slate texture, safety will be enhanced for the high level foot traffic from students coming and going.

The project encompassed 70 total cubic yards of concrete. Of this, 16 cubic yards of yellow and gold integral color were installed for the logo, which are the school colors.

**Capital RV Retail Store - Minot**

**Owner:** Capital RV Centers Inc.  
**Engineer:** Ackerman-Estvold Engineering Minot  
**Contractor:** Northwest Contracting- Minot  
**Concrete Supplier:** Strata Corporation- Minot

**PAVING PARKING LOTS**

With the increasing economy in western North Dakota, Capital RV Centers Inc. of Minot decided to expand their sales and operations facility on the west side of Minot. With the construction of a new showroom and service building, they needed a massive parking lot to display, store, and service a multitude of travel trailers, fifth wheels, and motorhomes.

The engineer designed the 90,000 sq. ft parking lot with 8” concrete pavement. Concrete had an initially higher cost up front, but the benefit of concrete outweighed the cost of the less expensive asphalt alternate in the long run.

The contractor placed roughly 2,450 cubic yards of 4,000 PSI concrete with a 20% fly ash replacement for the installation. The addition of micro synthetic fibers to the concrete provided crack control and durability.

This successful project has given Capital RV Centers Inc. a beautiful and durable new sales and service facility for many years to come.
When the Lewis’ called and asked Lyons to meet to discuss renovations to the back yard, they weren’t sure what could be done. They had drainage issues, no patio, and wood steps that were barely suitable for use.

All that Mr. Lewis wanted for sure was a 10’x10’ shed pad on the side. But Mrs. Lewis wanted something special. They designed a fantastic patio, complete with concrete steps from the sliding glass door, and an all concrete fire pit. But mostly, they wanted to make sure that there was a large enough area to comfortably turn around and close the door, while carrying a full tray of steaks to the grill without falling down the steps!

This made for a large, beautiful circular step with a 4’ top on top. The landing, steps, fire pit, and border are gray ready mixed concrete that are finished with Proline Midnight Gray Antiquing Release and stamped with a Rough Stone Seamless Texture Stamp. The main patio area is colored with Proline Pueblo Color Hardener and Midnight Gray Antiquing Release, and stamped with a Proline York Stone Stamp.

This 800 square foot patio has become a spectacular focal point and a great start to the backyard renovation for the Lewis’ home. They have been able to entertain on and build memories around the fire pit while making “S’mores” with their children. After all was said and done, Mr. Lewis even got his shed pad too!
The Wyatt - Minot

Owner: Westcorp
General Contractor: Richardson Van Leeuwen Construction
Sub-Contractor: Solid Concrete
Architect: The Richardson Design Partnership
Engineer: Taney Engineering
Supplied by: Souris Valley Ready Mix

The Wyatt is a 288 unit apartment complex. The complex provides a clubhouse with a gym, pool, spa, theater and business office. The Wyatt is paved with concrete throughout the entire complex from the apartments to the garages.

Solid Concrete brought state of the art equipment such as a 40 meter Z boom pump, laser screeds and graders set to pre-engineered models for the construction. By using this technology, much less time and labor was spent finishing concrete. This allowed accelerated preparation for subsequent pours, resulting in increased production, a desirable outcome in the short North Dakota building season.

Benefits to this development and the community will be recognized through the environmental pluses of light colored pavement surfaces. This, together with the engineered low w/c ratios and flyash enhanced mixes will ensure a long service life. This project will certainly contribute to low maintenance and otherwise excellent performance in this new sustainable world of construction focus.

Concrete pavements were placed early in the construction to allow use as a platform to support building construction. Approximately 6,250 cubic yards were placed to complete parking facilities for this initial phase. With concrete near the price of asphalt materials for projects of this scope, its great to see concrete parking area construction on the increase in Minot.
It seems everything in oil country is big, and that holds for the new Recreation Center in Williston. At 236,000 square feet, this wonderful addition to this “city on the grow” is the largest city owned facility of its type in the nation. For a citizenry which has so many limitations on recreation opportunities with the recent growth spurt, it comes just in time.

Despite the many challenges of doing any construction in the Bakken, this project is a showcase to good planning and efficient construction effort. The fact that this $75 million project was built on budget and ahead of schedule is a great testament to that fact.

A showcase of effective use of concrete technologies relate to the construction of the integral water park and gym in the recreation facility. Here, extra effort was placed to lower shrinkage to reduce cracking in the formed concrete, gym floors, precast topping slabs and shotcrete in pool areas. Strategic use of flyash, optimized aggregate gradations and concrete admixtures were key to achieving the desired aesthetic and structural results. The decorative concrete elements added enhancements to safety and further contributed to the aesthetic appeal of the facility interior.

In all, more than 6000 cubic yards was placed by the General Contractor with an additional 1700 cubic yards placed in the water park area combined with 700 cubic yards of shotcrete. Congratulations to Williston and oil country in general for the grand achievement in their new recreational opportunities.
The Minot International Airport will see their new two-level terminal building open next year with the elegance deserving of this community and this growing airport. The architects challenged the contractor and his concrete supplier to achieve quality aesthetics and durability for all exposed concrete surfaces. The decorative form liners specified for the airside exterior exposed concrete walls required special mix and construction effort to achieve the architectural finished without defects and discoloration. Concrete floor construction was readily accomplished with mobile pump placement around and through the steel superstructure. To reduce local impacts to urban heat island effect, all white roof material was used. In all, 121,000 sq. feet of floor was installed and a total of 3150 cubic yards of concrete was placed for this project.
The ND National Guard organization is continuing to explore the use of concrete for pavements around North Dakota with this newest project at their Minot facility. While the NDNG originally proposing to update the existing parking facility with an asphalt overlay, the Engineers at Swenson Hagen and Company recommended alternates using concrete overlay technologies. With the strong performance of the 4” concrete overlay on the main access road to Camp Grafton in Devils Lake, it seemed to be a logical solution for increased service life over the asphalt option. The NDNG engineers were receptive, and this resulting project will serve them well for decades.

The engineers designed the project for a 5” thickness for bonding to the existing 4 to 5 inches of asphalt. Only minor asphalt surface repairs were necessary, with a excellent bond for the concrete developed from the oxidized asphalt surface. Jointing was completed at the ordinary 6 foot by 6 foot spacing for overlays, giving an effective system to resist uncontrolled cracking while reducing pavement stresses for traffic loads. In all, the combined pavement section of 5 inches of existing asphalt combined with the 5 inches of concrete will provide traffic service for all normal vehicles in the NDNG system.

This project is the first concrete overlay constructed in North Dakota on a parking lot facility since the 1990’s when the Dairy Queen parking lot was paved in Dickinson. Congratulations to all project entities for a job well done.
Concrete Jungle I

Owner: McCody Concrete Products, Inc.
Architect: Kubala Washatko Architects, Inc.
Contractor: C.E. Doyle LLC
Engineer: Innovative Tilt-Up Design, LLC
Decorative Concrete Institute
Bi Design
Mickey Harris Art
McCody Concrete Products, Inc.

Supplied by:

This project consists of office, retail, mechanic shop and a precast manufacturing facility. The project goals targeted maximum energy efficiency while producing a durable and appealing interior and exterior. While no certification was investigated, many of the components of LEED were followed to achieve the environmentally friendly and low carbon footprint construction. Along with increased energy efficiencies with lower heating and cooling costs, the concrete construction provides significant reductions in insurance costs through high fire resistance and low combustion opportunity.

Use of integral color admixtures in the exterior wythe provided decorative enhancements over plain grey concrete. Exterior texture was created through insertion of rough cut pallet boards into panel forms as a face liner prior to the concrete pour.
The interior floors and counter-tops received many decorative techniques including surface grinding, integral colors, acid stains and water based dyes. The combination of colors and contouring provided unsurpassed beauty and elegance in wash basins and counter-tops, giving an amazing replication of out-of-the-ordinary jungle hardwoods.

The project encompassed a footprint of 65,000 square feet with a total of 88,000 square feet of finished space. Much of the 7,400 cubic yards of concrete was placed with macro fiber enhancement to the overall reinforcement scheme. The unique architecture combined with the wonderful decorative concrete elements make this project truly a winner in anyone’s perception of quality in design and construction.

🌟🌟🌟
Gold Star
County Road 20 Pasta Warehouse

Owner: Bob Nelson  
Contractor: KBW Associates  
Engineer: George LaPalm  
Supplier: Strata Corporation

This north Fargo project uses cast on site colored precast tilt up panel construction for this large 242,000 square foot pasta storage warehouse. The project involves the installation of 103 individual 8 inch thick panels making up the whole wall system. The floor is also 8 inches in thickness to ensure sufficient capacity to carry truck traffic and storage rack loads. The site-cast tilt-up panels provided block-outs for 32 loading dock doors.

The 4” thick polyurethane insulation board on interior surfaces gives the walls extreme thermal efficiencies with true R-17. The concrete walls provide excellent strength for high winds. Additional benefits of using concrete walls include resistance to water penetrations, molds, mildews and air infiltration. This project will provide optimal control of air exchange and internal air quality.

Use of the concrete panel construction was the clear choice for project goals of sustainability in construction and operation. The competitive initial construction cost was combined with a low maintenance exterior, the light colored roof and parking lot, and the energy efficiency to address sustainability goals. These features make for a high end project which meets environmental and low carbon footprint goals for the owner and the community. Plus, the use of tilt-up panel construction to accelerate construction schedules provided an economic reward of its own.

Aesthetics for the project exterior was enhanced through the use of integral color admixtures. The colored concrete combined with the textured surface will provide decades of practical service. The benefits of site cast tilt-up are top of the line choices, making this an Award Winning project our industry can be proud to represent. Congratulations to a great project development team.

The building portion of the project contains 7,400 cubic yards of concrete while the extensive exterior concrete parking area contains an additional 4,200 cubic yards of concrete, yielding a total of 11,600 cubic yards for the project.
The new Heath Care Facility is comprised of two buildings, totaling nearly 184,000 square feet, including a 77,000 square foot, 3-story Medical Office Building and a 107,000 square foot, single-story Hospital. The new $100 million hospital and clinic will be the only Critical Access Hospital within an 80 mile radius of Dickinson.

The new facility allows the hospital, clinic and associated specialty clinics to be housed under one roof improving efficiency through integrated health care systems. The primary wall system for both the hospital and the 3-story medical office building is insulated precast concrete sandwich panels, chosen for their sustainability, thermal efficiency and low life-cycle and maintenance costs. The interior layer of concrete acts as an thermal mass which helps maintain constant interior temperatures. The sandwich panel precast system contributes to reduced energy consumption enabling the building to meet more stringent energy requirements.

Approximately 36,000 square feet of precast panels were used between the two buildings. More than 12,000 cubic yards of cast-in-place concrete were used on this project, including footings, concrete frost strip, pad footings, piers, foundation walls, interior slabs, sidewalks, driveways, helipad and parking lots. There were 182,364 square feet of interior floor poured for this project.

All parking lots, driveways, sidewalks and courtyards around the building utilized CIP concrete and totaled 412,991 square feet. St. Joseph’s Hospital has been serving southwest North Dakota for more than 100 years. And now, the new Hospital and Medical Office Building will surely allow CHI St. Joseph’s Health to provide quality health care to this Region for another 100 years.
Bismarck Public Schools - Liberty Elementary

**Owner:** Bismarck Public School District

**Architect:**
- DLR Group
- Ubl Design Group

**Structural Engineer:** CWSTRUCTURAL Engineers

**General Contractor:** Northwest Contracting, Inc.

**Precast Supplier:** Wells Concrete

The Liberty Elementary School $12 million building was completed in August of 2014. The 76,000 square foot facility had a tight deadline to meet the 2014 school year. Use of precast elements was instrumental in addressing the fast construction schedule. The precast wall panels provided extreme performance capabilities in energy efficiency, durability, and low maintenance. Since this product was poured indoors in a climate controlled facility it allowed for better consistency and quality.

The architectural team was looking for an aesthetic contrast on the exterior finish, but also needed to keep budget in mind. To achieve this goal they worked closely with Wells Concrete by using one mix design and three different treatments including: water wash, sandblast, and acid etch finishes. These three finishes were all separated by reveals which gave some visual depth to the panels along with the contrast that the architect envisioned. The use of the colored aggregates offered up a maintenance-free exterior on the project for the duration of the building. With having 33,276 square foot of product, Wells had to pour this project on multiple forms to move the installation schedule forward. Wells Concrete’s facility created panel stations on several of their forms to keep consistency in the reveals between panels.

**Gold Star**
This project consisted of reconstruction of approximately 1.5 miles of 40th Avenue South from Drain 27 to Sheyenne Street. The existing two-lane asphalt rural roadway section was replaced with an urbanized 4-lane concrete street with turn lane channelization, multi-use paths, street lights, and traffic signals at the intersections of 54th Street and at Veterans Boulevard. The project also included a decorative concrete median.

A major design element was to provide capacity for the future volumes of traffic that are expected on the roadways. Two through-lanes are provided in each direction on 40th Avenue, along with left and right turn lanes at intersection locations throughout the corridor. Concrete pavement was chosen for the roadway because of the length of its service life and the expectation of large loads as the area develops. The light colored concrete provides a great contrast from the adjacent landscaped areas and decorative lighting.

In addition to concrete pavement in the roadway, a concrete shared-use path was installed adjacent to the roadway to accommodate pedestrian and non-vehicular traffic. Concrete was chosen for these paths to provide visual contrast to the surrounding landscape, long term surface quality, and load capacity to support snow removal equipment.

Decorative colored concrete was used in medians and boulevards in areas too narrow to support vegetation and where deicing materials would have detrimental effects on vegetation. The decorative colored concrete produces a surface that adds to the aesthetic quality of the project as well as providing a durable, low maintenance surface in narrow median and boulevard areas. To provide curing, Dakota Underground used Kure-n-Seal LV 25 with a rolling seal process. This involved the decorative roller stamp being sprayed with the sealant as well as sealant being sprayed on the surface for final curing.

It should be noted that concrete was the only material type considered for this project due to expectations of durability and reliability.

Concrete Paving - 9” Doweled - 50,000 SY
6” Decorative Colored Concrete Median - 4,500 SY
5” Shared Use Path, - 10,700 SY
In the last 5 years, Dickinson’s population has exploded along with the service needs of its citizens. One of the major needs culminated in the construction of a larger, newer, and state of the art hospital. When St. Joseph's Hospital began its design process, the City of Dickinson knew they would have to do an upgrade on Empire Road to accommodate traffic to the new hospital. What they accomplished with this project became both a functional and appealing new access for the hospital and the general undeveloped area.

Initial planning suggested an upgrade to this area in preparation for the inevitable development in West Dickinson. They started the process by eliminating the Empire Road access to the West I-94 business loop, and moving the main entrance to Fairway Street to eliminate bottlenecks. Further, Willer Circle was designed as a future access for the prime real estate that lies west of the new hospital.

Concrete was chosen in preference to asphalt paving due to:
- Comparable or lower life cycle costs
- Durability expectations
- Light reflectivity and lower heat island effects
- Aesthetically more appealing to match other pavements in the area

The newly redone street consists of nearly one mile (0.93 mi) of 8” thick pavement, 9,551 linear feet of curb and gutter, 198,920 sq. feet of placed pavement, and 6,237 cu. yards of concrete. The higher slump pavement placement was by pumping and then using a bridge deck paver to finish. The curb and gutter was telebelted due to the 1” slump needs of the mix.

All concrete placements were completed in less than three months. Though the city has not formally indicated such, it appears the pavement will meet the City of Dickinson ride spec without necessary grinding remediation. The result is a light, bright aesthetically pleasing and safe access to the new St. Joseph's Hospital that will provide years of service to the Dickinson community.
Compliments to a great job in serving the growing West Fargo community with quality multi-use paths built in concrete. This project is one of a series of projects that engineers from West Fargo have chosen for concrete pavements for parks and outdoor recreational needs for their citizen. Their efforts are attracting quality contractors at competitive prices.

Concrete was chosen by the City of West Fargo and Moore Engineering, Inc. for these multi-use paths to provide visual contrast to the surrounding landscape, long term surface quality, and load capacity to support snow removal equipment.

Thanks to all those engineers specifying concrete for paths. This project certainly showcases the ability of our concrete industry to meet the needs of our citizenry, especially for the most important of our needs such as these recreational paths.

Notes from a Multi-Use Path User

This awards category is somewhat unusual in that it is primarily focused on recognition of those who choose concrete over asphalt, rather than any quality design or construction effort. As a roller blader, I particularly notice the rapid surface deterioration that occurs on asphalt paths. This surface roughness greatly diminishes the experience while roller blading. A sand seal is seldom applied to restore the surface, whereas, a chip seal only makes it worse.

The concrete paths that are in general use in Fargo, Grand Forks, West Fargo, Dickinson and some in Bismarck and Minot, provide a much more durable surface for the roller blader, or even the parent who is pushing a child stroller. As long as joints are sawn and not tooled, concrete is the far better surface to provide quality experiences for me and the many other users of the recreational paths in our communities. Think concrete for your next multi-use path project. Thanks. Dave Sethre
North Dakota Heritage Center Expansion

Owner: State of North Dakota
Architect: HGA Architects and Engineers
Civil Engineer: Lightowler Johnson and Associates
Contractor: Comstock Construction
Drilled Pier Contractor: Blackhawk Drilling
Concrete Supplier: Strata Corporation

The North Dakota Heritage Center expansion creates a landmark destination that elevates the State Historical Society of North Dakota’s mission to identify, preserve, interpret and promote the heritage of the state and its people. The 97,000 SF addition nearly doubles the Heritage Center with expanded galleries and interactive learning labs; café; 60-seat digital Great Plains Theater; conference and meeting facilities; state-of-the-art research technology; archive storage and support spaces. Shifting the main entrance to a prominent corner location, the addition extends eastward toward State Street and the North Dakota State Capitol campus to give the Heritage Center a dynamic community presence.

The expansion respects the architectural character of both the existing Center and the larger state capitol campus. The addition is clad in the distinctive Indiana limestone used throughout the campus in order to blend seamlessly with the existing building and its context, while a glass entrance atrium on the south façade emphasizes the transparency between inside and outside. An entry plaza features petrified wood logs and glacial erratics.

The expansion has a mix of structural systems, including a concrete lower level supporting the concrete pan/joist main gallery floor and exposed structural steel in the museum spaces, all on a drilled pier foundation. The concrete system for the lower level and museum floor was selected for its high load capacity, flexibility in loading, ability to add future openings and durability, all of which were critical for the archive and museum spaces. Concrete was also used for the new and expanded parking lots for durability and to help mitigate urban heat island effects.

The project was designed to meet LEED Silver standards but did not pursue certification. Sustainable components include extensive use of local fly ash, ground source heating and cooling, stormwater management and control systems, and reused copper and wood building materials.
The project received a generous donation of $500,000 of fly ash from Great River Energy. The team desired to use as much of the donated fly ash as possible so high volume fly ash concrete mixes were specified with minimum 25% and maximum 50% replacement. The high fly ash mixes required pre-construction meetings with the contractor, concrete supplier, design team and owner so that any impacts of and concerns with the mixes could be discussed. Because of the retarded strength gain of high fly ash mixes, extra cylinders were cast during placement so breaks could be made at 56 days and 84 days if needed. The 50% mixes were used for foundations and walls and 35% replacement mixes were used for the pan/ joist systems and any flatwork so that forms could be stripped earlier.

Sustainable design is achieved in the North Dakota Heritage Center. Successful coordination between all disciplines allowed the architectural vision to be realized and provides a new world class facility for the state of North Dakota.
2015 NDRMCPA Scholarship Awardees

The Board of Directors of the North Dakota Ready Mix & Concrete Products Association wishes to congratulate the 2015 scholarship recipients. These students have shown a commitment to educational excellence and the recognition of the importance of concrete in their professional future. These scholarship awardees will receive $1500.

Matthew Lee                     NDSU Civil Engineering
Matthew Hildreth            NDSU Civil Engineering
Katelyn Kostad    NDSU Architecture

We wish to thank all students who applied for a scholarship for the time and effort that went into their applications. Also, a special thanks to the scholarship committee and others who so diligently helped with the special fund raising so necessary to make this scholarship program successful. And, of course, thank you to our concrete industry supporters, who were the actual donors for our scholarship effort.